What is claimed is:

1. An extracorporeal blood perfusion system for receiving venous blood from a patient and for returning oxygenated blood to the patient in a cardiopulmonary bypass procedure, comprising:

a disposable assembly including a cartridge and a plurality of interconnected tubing lines, the cartridge having a plurality of internal fluid passageways, wherein a first of the tubing lines is fluidly interconnected with at least one of the plurality of fluid passageways and wherein the disposable assembly defines a blood circuit for receiving venous blood from the patient and transferring oxygenated blood to the patient in a cardiopulmonary bypass procedure; and

a control unit having a component interface region, the component interface region including a cartridge interface region for operatively interfacing with the cartridge, and a first pump for operatively interfacing with a the blood circuit, wherein the venous blood is pumped through the blood circuit by the first pump.

2. The extracorporeal blood perfusion system of claim 1, wherein the disposable assembly further comprises a reservoir for accumulating the venous blood from the patient, and the component interface region further comprises a flow control clamp for controlling the flow of venous blood through a second tubing line to the reservoir.

3. The extracorporeal blood perfusion system of claim 2, wherein the flow control clamp is controllable to maintain at least one of a predetermined relative flow percentage through the second tubing line to the reservoir and a predetermined fluid volume within the reservoir.

4. The extracorporeal blood perfusion system of claim 2 wherein the disposable assembly further comprises an oxygenator connected in the blood circuit downstream from the reservoir, and wherein the first pump is configured to pump accumulated venous blood from the reservoir through the oxygenator to provide for the transfer of the oxygenated blood to the patient.

5. The extracorporeal blood perfusion system of claim 1, wherein the disposable assembly further comprises a reservoir for accumulating the venous blood from the patient, and the component interface region further comprises a sensor for detecting the presence of gaseous bubbles within the oxygenated blood and at least one valve assembly configured for diverting the flow of the oxygenated blood to the reservoir upon detection of gaseous bubbles in the oxygenated blood by the sensor.

6. The extracorporeal blood perfusion system of claim 1, wherein the disposable assembly further defines a cardioplegia circuit for supplying a cardioplegia solution to the patient, the cardioplegia circuit including a fluid interconnection with the blood circuit for flowing at least a portion of the oxygenated blood to one of the plurality of fluid passageways for mixture with a cardioplegia solution.

7. The extracorporeal blood perfusion system of claim 1, wherein the component interface region further comprises a plurality of sensors positioned for monitoring an oxygen saturation, hematocrit and temperature of the venous blood received in the blood circuit.

8. The extracorporeal blood perfusion system of claim 1, wherein the component interface region further comprises a pressure sensor positioned for monitoring a fluid pressure of the oxygenated blood in the blood circuit.

9. The extracorporeal blood perfusion system of claim 8, wherein the control unit is operable to automatically suspend operation of the first pump when the pressure sensor detects a fluid pressure greater than a predetermined level.

10. The extracorporeal blood perfusion system of claim 1, wherein the cartridge comprises a housing including a first rigid portion connected to a second flexible portion.

11. The extracorporeal blood perfusion system of claim 10, wherein the cartridge interface region further includes a pressure sensor configured to sense fluid pressure in an internal passageway of the cartridge through the second flexible portion of the housing.

12. The extracorporeal blood perfusion system of claim 1, wherein the cartridge interface region further includes a valve actuator and the cartridge further includes a valve station, the valve station being in fluid communication with an internal passageway, the valve station having a flexible member configured to be moveable from a first position allowing fluid flow between the internal passageways and a second position preventing fluid flow between the internal passageways, the valve actuator being configured to interface with the flexible member to cause movement of the flexible member between the first and second positions.

13. An extracorporeal blood perfusion system for use in receiving venous blood from a patient and for returning oxygenated blood to the patient, comprising:

a disposable assembly including a cartridge and a plurality of interconnected tubing lines, the disposable assembly defining a blood circuit for receiving venous blood from the patient and transferring oxygenated blood to the patient and a cardioplegia circuit for transferring a cardioplegia solution to the patient;

a control unit having a component interface region including a cartridge interface region for operatively interfacing with the cartridge; and

a first pump for controlling the flow of venous blood through a first tubing loop comprising the blood circuit, and a second pump for controlling the flow of cardioplegia solution through a second tubing loop comprising the cardioplegia circuit, wherein the second tubing loop is fluidly interconnected at each end thereof to the cartridge.

14. The extracorporeal blood perfusion system of claim 13, wherein the first and second pumps are substantially vertically aligned in relative fixed relation, and wherein the first pump is located below the second pump.

15. The extracorporeal blood perfusion system of claim 13, wherein the component interface region further includes a third pump for controlling the flow of blood through a third tubing loop comprising the cardioplegia circuit, wherein the third tubing loop is fluidly interconnected at each end thereof to the cartridge, and wherein the second pump and the third pump combinatively control the flow of cardioplegia solution to the patient.

16. The extracorporeal blood perfusion system of claim 15, wherein the second and third pumps are substantially vertically aligned in relative fixed relation.

17. The extracorporeal blood perfusion system of claim 16, wherein the disposable assembly further defines a blood recovery circuit for receiving vented blood from a left ventricle of the patient and the component interface region further comprises a fourth pump for controlling the flow of the vented blood through a fourth tubing loop comprising the blood recovery circuit.

18. The extracorporeal blood perfusion system of claim 17, wherein the first, second, third and fourth pumps are in substantial vertical alignment in relative fixed relation.

19. The extracorporeal blood perfusion system of claim 17, wherein the disposable assembly further defines a first autologous blood circuit for receiving autologous blood from the patient, and the component interface region further comprises a fifth pump for controlling the flow of the autologous blood through a fifth tubing loop comprising the first blood recovery circuit, the fifth pump being positioned to create during operation a suction at a free end of the first blood recovery circuit.

20. The extracorporeal blood perfusion system of claim 19, wherein the first, second, third, fourth and fifth pumps are in substantial vertical alignment in relative fixed relation.

21. An extracorporeal blood perfusion system for use in receiving venous blood from a patient's heart and for transferring oxygenated blood back to the patient, comprising:

a disposable assembly including a reservoir, an oxygenator and a plurality of tubing lines, wherein a first tubing line is connected for transferring venous blood from the patient to the reservoir, and a second

tubing line is connected for transferring oxygenated blood to the patient; and

a control unit having a component interface panel including a clamp assembly for controlling the rate of transfer of the venous blood through the first tubing line to the reservoir.

22. The extracorporeal blood perfusion system of claim 21, wherein the component interface panel further includes a first pump connected for pumping the venous blood from the reservoir through the oxygenator and for pumping the oxygenated blood through the second tubing line to the patient.

23. The extracorporeal blood perfusion system of claim 21, wherein the clamp assembly includes a plunger and a lid configured for clamping the first tubing line therebetween.

24. The extracorporeal blood perfusion system of claim 21, wherein the control unit is configured to selectively control advancement and retraction of the plunger relative to the lid, wherein a predetermined degree of occlusion of the first tubing line by the clamp assembly is selectable by a user.

25. An extracorporeal blood perfusion system for use in receiving venous blood from a patient and returning oxygenated blood to the patient, comprising:

a disposable assembly including a cartridge and a plurality of tubing lines, the disposable assembly defining at least a blood circuit for receiving venous blood from the patient and returning oxygenated blood to the patient and a cardioplegia circuit for transferring a cardioplegia solution to the patient; and

a control unit having a component interface panel comprising a cartridge interface region operatively interfacing with the cartridge, and

including a first pressure sensor for monitoring a fluid pressure within the blood circuit, and a second pressure sensor for monitoring a fluid pressure within the cardioplegia circuit; and

first and second pumps, the first pump being configured to control a flow rate of the oxygenated blood in the blood circuit, and the second pump being configured to at least partially control a flow rate of the cardioplegia solution in the cardioplegia circuit.

26. The extracorporeal blood perfusion system of claim 25, wherein the disposable assembly further defines at least a first blood recovery circuit for receiving vented blood from a left ventricle of the patient, and the cartridge interface region comprises a third pressure sensor configured for monitoring a fluid pressure within the blood recovery circuit.

27. The extracorporeal blood perfusion system of claim 26, wherein the disposable assembly further defines at least a first autologous blood circuit configured for suctioning autologous blood from the patient, and the cartridge interface region comprises a fourth pressure sensor configured for monitoring a fluid pressure within the first autologous blood circuit.

28. An extracorporeal blood perfusion system for use in receiving blood from a patient's heart and for transferring the blood back to the patient comprising:

a disposable assembly including a cartridge and a plurality of tubing lines, the disposable assembly defining a blood circuit for receiving blood from the patient and for transferring the blood back to the patient, the cartridge including a plurality of internal passageways and at least one reservoir containing a cardioplegia solution, the at least one reservoir being configured to

be interconnectable to the cartridge to flow the cardioplegia solution into at least one of the plurality of fluid passageways of the cartridge; and

a control unit having a cartridge interface region for operatively interfacing with the cartridge, the cartridge interface region having at least one sensor configured for sensing one of a pressure and temperature of a fluid flowing through the at least one fluid passageway of the cartridge.

29. The extracorporeal blood perfusion system of claim 28, wherein the at least one sensor comprises a first sensor for sensing fluid pressure and a second sensor for sensing fluid temperature within the at least one fluid passageway of the cartridge.

30. The extracorporeal blood perfusion system of claim 28, wherein the cartridge further comprises a filter configured for filtering the cardioplegia solution.

31. The extracorporeal blood perfusion system of claim 28, wherein the cartridge further comprises a trap configured to remove gaseous bubbles from the fluid flowing through the at least one fluid passageway of the cartridge.

32. The extracorporeal blood perfusion system of claim 28, wherein the disposable assembly further comprises a cardioplegia tubing line fluidly interconnected to the at least one internal passageway of the cartridge for transferring the cardioplegia solution to the patient.

33. An extracorporeal blood perfusion system for use in receiving venous blood from a patient and returning oxygenated blood to the patient, comprising:

a disposable assembly including a plurality of fluid channels, the disposable assembly defining a blood circuit for receiving venous blood from

the patient and returning oxygenated blood to the patient, the plurality of fluid channels including a first fluid channel fluidly interconnected to the blood circuit, the first fluid channel being at least partially defined by a first tubing line, and a second fluid channel being at least partially defined by a second tubing line, the first and second fluid channels being fluidly interconnected to a third fluid channel; and

a control unit including a component interface region comprising a first pump connected for operatively interfacing with the first tubing line, wherein oxygenated blood is pumped through the first tubing line by the first pump, and a second pump connected for operatively interfacing with the second tubing line, the second pump being configured to pump a cardioplegia solution through the second tubing line, the control unit being configured such that a volumetric ratio of the cardioplegia solution and the oxygenated blood is selectively established in the third fluid channel by control of the first and second pumps.

34. The extracorporeal blood perfusion system of claim 33, wherein the disposable assembly comprises a cartridge having a first internal passageway interconnected with the first tubing line, a second internal passageway interconnected with the second tubing line, and a third internal passageway at least partial defining the third fluid channel, wherein the first, second and third internal passageways adjoin within the cartridge.

35. The extracorporeal blood perfusion system of claim 34, wherein the cartridge further comprises a bubble trap configured for removing gaseous bubbles from fluid passing through the third internal passageway.

36. The extracorporeal blood perfusion system of claim 35, wherein the component interface region comprises a cartridge interface region for

operatively interfacing with the cartridge, the cartridge interface region including a pressure sensor configured for monitoring a fluid pressure within the third internal passageway.

37. An extracorporeal blood perfusion system for receiving venous blood from a patient and transferring oxygenated blood to the patient, comprising:

a disposable assembly including a cartridge and a plurality of tubing lines, the disposable assembly defining a blood circuit for receiving venous blood from the patient and transferring oxygenated blood to the patient, and a blood recovery circuit for receiving at least one of autologous blood from the patient and vented blood from a left ventricle of the patient; and

a control unit having a component interface region configured for controlling the flow of fluids in each of the blood and blood recovery circuits.

38. The extracorporeal blood perfusion system of claim 37, wherein the cartridge includes a sequestration reservoir configured for accumulating the at least one of autologous blood and vented blood.

39. The extracorporeal blood perfusion system of claim 38, wherein the blood circuit includes a venous reservoir connected for accumulating the venous blood, and the component interface region includes a valve positioned for selectively controlling the flow of fluid from the sequestration reservoir to the venous reservoir.

40. The extracorporeal blood perfusion system of claim 37, wherein the blood recovery circuit is connected to receive at least one of autologous blood and vented blood, and the component interface region includes a valve

assembly, the control unit being configured to selectively operate the valve assembly in a manner that controls the flow of the vented blood directly from the blood recovery circuit into the blood circuit.

41. An extracorporeal blood perfusion system for use in receiving venous blood from a patient and transferring oxygenated blood to the patient, comprising:

a disposable assembly defining a plurality of fluid circuits, including a blood circuit for receiving venous blood from the patient and transferring oxygenated blood to the patient;

a control unit having a component interface region for operatively interfacing with the disposable assembly, the component interface region including a flow controller to control the rate of flow of fluids through a first of the plurality of fluid circuits; and

a user interface, operatively interconnected with the flow controller, including a display configured to be selectively controllable to display an object that provides a functional interface for user control over the operation of the flow controller.

42. The extracorporeal blood perfusion system of claim 41, wherein the plurality of fluid circuits further includes a cardioplegia circuit for supplying a cardioplegia solution to the patient, and wherein the display is configured to be selectively controllable to display graphic depictions of each of the blood and cardioplegia circuits.

43. The extracorporeal blood perfusion system of claim 42, wherein the flow controller comprises a first valve operatively interfacing with the blood circuit, and a second valve operatively interfacing with the cardioplegia circuit.

44. The extracorporeal blood perfusion system of claim 43, wherein the graphic depiction of the blood circuit comprises a first object corresponding with the first valve, the display being configured such that the first object provides a functional interface for user control over the operation of the first valve, and the graphic depiction of the cardioplegia circuit comprises a second object corresponding with the second valve, the display being configured such that the second object provides a functional interface for user control over the second valve.

45. The extracorporeal blood perfusion system of claim 44, wherein the display is configured such that the first object provides a visual indication of whether the first valve is open or closed, and the second object provides a visual indication of whether the second valve is open or closed.

46. The extracorporeal blood perfusion system of claim 44, wherein the functional interface corresponding with the first object and the functional interface corresponding with the second object are defined by a touch-screen attribute of the display.

47. The extracorporeal blood perfusion system of claim 42, wherein the flow controller comprises a first pump configured to operatively interface with the blood circuit, and a second pump configured to operatively interface with the cardioplegia circuit.

48. The extracorporeal blood perfusion system of claim 47, wherein the display is configured such that the graphic depiction of the blood circuit comprises a first flow rate indicator corresponding with the first pump to indicate a current fluid flow rate established by the first pump, and the graphic

depiction of the cardioplegia circuit comprises a second flow rate indicator corresponding with the second pump to indicate a current fluid flow rate established by the second pump.

49. The extracorporeal blood perfusion system of claim 41, wherein the component interface region further comprises at least a first sensor configured to operatively interface with one of the plurality of fluid circuits to monitor a first fluid parameter corresponding with fluid flowing through the one fluid circuit, and wherein the user interface is operatively interconnected with the first sensor to display a value corresponding with the monitored first fluid parameter and to provide a user alert when the monitored first fluid parameter is outside of a predetermined range.

50. The extracorporeal blood perfusion system of claim 49, wherein the display is configured to be selectively controllable to display an object selectable by a user for setting the predetermined range.

51. An extracorporeal blood perfusion system for use in receiving venous blood from a patient and transferring oxygenated blood to the patient, comprising:

a disposable assembly defining a plurality of fluid circuits, including a blood circuit for receiving venous blood from the patient and transferring oxygenated blood to the patient;

a control unit including a component interface region for operatively interfacing with the disposable assembly, the component interface region including at least one sensor configured to operatively interface with one of the plurality of fluid circuits to monitor a first fluid parameter corresponding with a fluid flowing through the one fluid circuit; and

a user interface operatively interconnected with the component interface region and configured to display a value corresponding with the monitored first parameter and to provide a user alert when the monitored first parameter is outside of a predetermined range.

52. The extracorporeal blood perfusion system of claim 51, wherein the user interface is configured to be selectively controllable by a user to display an object corresponding with the at least one sensor, the interface being configured such that the object provides a functional interface for setting the predetermined range by a user.

53. The extracorporeal blood perfusion system of claim 52, wherein the functional interface is provided by the object via a touch-screen attribute of the user interface.

54. The extracorporeal blood perfusion system of claim 52, wherein the user interface further comprises a control knob configured such that upon functional interface by a user with the object, the control knob may be manipulated by a user to set the predetermined range.

55. The extracorporeal blood perfusion system of claim 51 wherein the user interface is configured to be selectively controllable by a user to display a graphic depiction corresponding with the blood circuit, the graphic depiction including a plurality of objects corresponding with a plurality of sensors comprising the component interface region to monitor a corresponding plurality of fluid parameters corresponding with fluid flowing through the blood circuit.

56. The extracorporeal blood perfusion system of claim 55, wherein the user interface is configured such that the plurality of monitored fluid parameters includes oxygen saturation, hematocrit and temperature of the venous blood.

57. The extracorporeal blood perfusion system of claim 51, wherein the component interface region further comprises a flow controller to control the flow of fluid through the one fluid circuit, and the control unit comprises a processor, operatively interconnected with the flow controller and the first sensor, wherein the processor is operable to automatically provide a control signal to the flow controller when the monitored first parameter is outside of the predetermined range.

58. An extracorporeal blood perfusion system, comprising:

a disposable assembly defining a plurality of fluid circuits;

a control unit having a component interface region for operatively interfacing with the disposable assembly, the component interface region being configured to monitor a plurality of fluid parameters corresponding with fluid flowing through the plurality of fluid circuits; and

a user interface, operatively interconnected with the component interface region, including a display having at least two display regions selected from a group of:

a first display region for continuously displaying at least a first set of values corresponding with each of a first set of the plurality of monitored parameters;

a second display region for selectively displaying one of a plurality of graphic depictions, each graphic depiction corresponding with a given one of the plurality of fluid circuits; and

a third display region for displaying user alert indications when a given one of the plurality of monitored parameters is outside of a corresponding predetermined range.

59. The extracorporeal blood perfusion system of claim 58, wherein the disposable assembly defines a blood circuit configured to receive venous blood from a patient and to return oxygenated blood to the patient, and wherein the first set of values comprises an oxygen saturation value, blood hematocrit value and temperature value for the venous blood.

60. The extracorporeal blood perfusion system of claim 58, wherein the first display region is configured to continuously display a second set of values corresponding with each of a second set of the plurality of monitored parameters, and the second set of values comprises a pressure value, a flow rate value and a temperature value for the oxygenated blood.

61. The extracorporeal blood perfusion system of claim 58, wherein the disposable assembly defines a cardioplegia circuit for supplying a cardioplegia solution to a patient, and wherein the first set of values comprises a fluid pressure value, a flow rate value and a temperature value of the cardioplegia solution.

62. The extracorporeal blood perfusion system of claim 58, wherein the disposable assembly defines a blood circuit for receiving venous blood from a patient and transferring oxygenated blood to the patient, and a cardioplegia circuit for supplying a cardioplegia solution to the patient, and wherein the first display region is configured to continuously display a second set of values corresponding with each of a second set of the plurality of monitored parameters, wherein the first set of values comprises a fluid pressure value,

flow rate value and temperature value of the cardioplegia solution, and wherein the second set of values comprises at least one of a first subset of values comprising an oxygen saturation value, blood hematocrit value and temperature value for the venous blood, and a second subset of values comprising a fluid pressure value, flow rate value and temperature value for the oxygenated blood.

63. The extracorporeal blood perfusion system of claim 62, wherein the first display region is configured to continuously display at least a second set of values corresponding with each of a second set of the plurality of monitored parameters, wherein the second set of values comprises at least one of a bolus volume value corresponding with an amount of the cardioplegia solution to be supplied to the patient and an ischemic time value corresponding with an elapsed amount of time between successive periods during which the cardioplegia solution is supplied to a patient.

64. The extracorporeal blood perfusion system of claim 58, wherein the disposable assembly defines a blood circuit for receiving venous blood from a patient and transferring oxygenated blood to the patient and includes a blood reservoir, and wherein the first display region is configured to continuously display a graphic representation of the volumetric fluid content of the reservoir on a real-time basis.

65. The extracorporeal blood perfusion system of claim 64, wherein the first display region further comprises a numeric display of the volumetric amount of fluid contained by the reservoir on a real-time monitored basis.

66. The extracorporeal blood perfusion system of claim 58, wherein the disposable assembly comprises a blood circuit for receiving venous blood from a patient and transferring oxygenated blood to a patient, wherein the blood

circuit includes a venous reservoir for receiving the venous blood, and wherein the component interface region comprises a clamp configured to control the rate of flow of the venous blood to the reservoir, and wherein the first display region further comprises an object providing a functional interface for a user to establish a degree to which the clamp is open for passage of the venous blood to the reservoir.

67. The extracorporeal blood perfusion system of claim 66, wherein the user interface further comprises a control knob, the user interface being configured such that upon functional interface with the object by a user, the control knob is manipulatable by a user to establish the degree to which the clamp is open.

68. An extracorporeal blood perfusion system, comprising:

a disposable assembly including a cartridge and a plurality of tubing lines, the disposable assembly defining a blood circuit for receiving venous blood from a patient and transferring oxygenated blood to the patient, and a cardioplegia circuit for transferring a cardioplegia solution to the patient;

a control unit including a component interface region for operatively interfacing with the disposable assembly; and

a user interface, operably interconnected with the component interface region, including a display, the display being configured for displaying narrative instructions and corresponding graphic depictions for loading the disposable assembly on the component interface region.

69. The extracorporeal blood perfusion system of claim 68, wherein the display is configured such that the narrative instructions and corresponding graphic depictions are presented in a plurality of sequentially presented display boxes.

70. An extracorporeal blood perfusion system, comprising:

a disposable assembly defining a plurality of fluid circuits;

a control unit having a component interface region including a flow controller configured to control the flow of fluids through at least a first of the plurality of fluid circuits, and at least a first sensor for monitoring a first fluid parameter corresponding with fluid flowing through the first fluid circuit, wherein the flow controller is configured to be controllable to automatically adjust the flow of fluid through the first fluid circuit when the first sensor detects that the first parameter is outside of a predetermined range; and

a user interface, operatively interconnected with the component interface region, including a display configured for selectively displaying functional objects, at least one of the objects being employable by a user to set the predetermined range.

71. The extracorporeal blood perfusion system of claim 70, wherein the disposable assembly defines a blood circuit for transferring venous blood from a patient and returning oxygenated blood to the patient, the flow controller comprises a first pump for controlling the flow rate of the oxygenated blood, and the first sensor is configured to monitor a fluid pressure of the oxygenated blood, wherein the first pump is controllable to automatically stop when the first sensor detects that the fluid pressure is outside of a predetermined pressure range.

72. The extracorporeal blood perfusion system of claim 70, wherein the disposable assembly defines a blood circuit for receiving venous blood from a patient and returning oxygenated blood to the patient, the blood circuit including a reservoir for accumulating the venous blood and an oxygenator,

wherein the flow controller comprises a first pump for controlling a flow rate of the venous blood from the reservoir through the oxygenator to provide the oxygenated blood, and wherein the first sensor monitors a volumetric content of the reservoir, wherein the first pump is configured to be controllable to automatically stop the flow of the oxygenated blood when the first sensor detects that the volumetric fluid content of the reservoir is outside of a predetermined range.

73. The extracorporeal blood perfusion system of claim 70, wherein the disposable assembly defines a cardioplegia circuit for supplying a cardioplegia solution to a patient, the flow controller comprises at least a first pump connected for controlling a flow rate of the cardioplegia solution, and wherein the first sensor monitors a fluid pressure of the cardioplegia solution, the first pump being configured to be controllable to automatically stop the flow of the cardioplegia solution when the first sensor detects a fluid pressure outside of a predetermined pressure range.

74. The extracorporeal blood perfusion system of claim 70, wherein the disposable assembly defines a blood circuit for receiving venous blood from a patient and returning oxygenated blood to the patient, the blood circuit including a reservoir for accumulating the venous blood and providing the accumulated venous blood for oxygenation, wherein the flow controller includes a flow control clamp configured for controlling the flow of venous blood to the reservoir and a first pump configured for controlling the flow rate of the oxygenated blood, and wherein the first sensor is configured to monitor a fluid level within the reservoir, wherein one of the flow control clamp and the first pump is automatically controllable to maintain a predetermined fluid level in the reservoir based upon an output provided by the first sensor.

75. An extracorporeal blood perfusion system, comprising:

a disposable assembly defining a plurality of fluid circuits;

a control unit including a component interface region for operatively interfacing with the disposable assembly;

a user interface, operatively interconnected with the component interface region, including a display configured to provide a context-driven display region, the context-driven display region displaying a plurality of tabs provided for functional interface with a user, and any one of a plurality of information sets, each information set corresponding with a given one of the tabs, wherein separate first and second tabs are provided in corresponding relation to at least a first fluid circuit and a second fluid circuit comprising the plurality of fluid circuits.

76. The extracorporeal blood perfusion system of claim 75, wherein the first circuit is a blood circuit for receiving venous blood from a patient and returning oxygenated blood to the patient, wherein the second fluid circuit is a cardioplegia circuit for supplying cardioplegia to the patient, and wherein the information sets corresponding with the first and second tabs comprise graphic depictions of the blood circuit and the cardioplegia circuit, respectively.

77. The extracorporeal blood perfusion system of claim 76, wherein the component interface region comprises a first sensor for monitoring a parameter of fluid flowing in the blood circuit and a first pump for controlling the flow rate of the oxygenated blood in the blood circuit, and a second sensor for monitoring a parameter of the cardioplegia solution flowing in the cardioplegia circuit and a second pump for controlling the flow rate of the cardioplegia solution.

78. An extracorporeal blood perfusion system for receiving venous blood from a patient and for returning oxygenated blood to the patient in a cardiopulmonary bypass procedure comprising:

a cardiopulmonary circuit configured to receive venous blood from the patient and to return oxygenated blood to the patient;

a cardioplegia circuit configured for delivering a cardioplegia solution to the patient;

a cardiotomy circuit configured for withdrawing fluids from the patient; and

a cartridge having a housing defining a plurality of internal passageways connected to the cardiopulmonary circuit, the cardioplegia circuit, and the cardiotomy circuit.

79. The extracorporeal blood perfusion system of claim 78 further comprising a ventricular vent circuit configured for draining blood from the patient's left ventricle and wherein the housing of the cartridge defines a plurality of internal passageways connected to the cardiopulmonary circuit, the cardioplegia circuit, the cardiotomy circuit, and the ventricular vent circuit.

80. The extracorporeal blood perfusion system of claim 78, wherein the housing of the cartridge comprises a first rigid portion connected to a second flexible portion in a manner defining at least in part the plurality of internal passageways.

81. The extracorporeal blood perfusion system of claim 80, wherein the first rigid portion comprises a translucent material configured to allow viewing of fluid in an internal passageway.

82. The extracorporeal blood perfusion system of claim 78 further comprising a bubble detector connected for detecting bubbles in the cardiopulmonary circuit.

83. The extracorporeal blood perfusion system of claim 82, wherein the bubble detector is positioned for detecting bubbles in at least one of the internal passageways.

84. The extracorporeal blood perfusion system of claim 78 further comprising a filter positioned for filtering at least one of blood, cardioplegia solution, and fluid flowing in an internal passageway.

85. The extracorporeal blood perfusion system of claim 80, wherein the first portion of the cartridge defines a plurality of inlet and exit ports in fluid communication with the plurality of internal passageways.

86. An extracorporeal blood perfusion system comprising:

a disposable assembly comprising a plurality of components interconnected by a plurality of tubing lines, the plurality of components including a cartridge and at least one of an oxygenator, a heat exchanger, a blood reservoir and an arterial filter, the cartridge having a housing defining a plurality of internal fluid passageways, the tubing lines interconnecting the components to define a blood circuit for receiving venous blood from a patient and returning oxygenated blood to the patient; and

a control unit having an interface region for operatively interfacing with the disposable assembly, the interface region including a plurality of sensors for sensing at least one fluid characteristic including pressure, temperature, level and air bubbles, and for generating a signal indicative of each fluid characteristic sensed, at least one of the sensors being positioned to sense a

characteristic of fluid in an internal passageway of the cartridge, the control unit further including at least one flow control element configured to control the rate of flow of blood in the blood circuit in response to at least one of the sensed fluid characteristics.

87. The blood perfusion system of claim 86, wherein the flow control element is a roller pump attached to a tubing line in the blood circuit.

88. A method for maintaining the level of blood in a venous reservoir at a predetermined level when the reservoir is used in an extracorporeal blood perfusion system which includes a cardiopulmonary blood circuit for receiving venous blood from a patient through a venous line, oxygenating the blood in an oxygenator, and returning the oxygenated blood to the patient through an arterial line, the venous reservoir having an inlet connected to the venous line and an outlet connected to the oxygenator, the method comprising:

providing a level control element operatively connected to the venous reservoir for controlling at least one of the rate of flow of venous blood out of the venous reservoir and the rate of flow of venous blood into the venous reservoir through the venous line;

providing a level sensor configured to continuously monitor the level of blood in the venous reservoir and to provide level signals indicative of the blood level; and

providing a control unit connected to received the level signals, the control unit being connected to the level control element and being configured to functionally control operation of the level control element such that when the level signals are indicative of a level below the predetermined level the flow control element is caused to increase venous blood level in the venous reservoir by at least one of increasing venous blood flow into the venous reservoir and

decreasing venous blood flow out of the venous reservoir, and when the level signals are indicative of a level which is above the predetermined level the flow control element is caused to decrease venous blood level in the venous reservoir by at least one of decreasing venous blood flow into the venous reservoir and increasing venous blood flow out of the venous reservoir.

89. The method of claim 88 wherein the step of providing a level control element comprises providing a pump connected to the outlet of the venous reservoir and wherein the step of providing a control unit comprises providing a control unit which is configured such that when the level signals are indicative of a level below the predetermined level the pump is caused to slow the flow of blood out of the venous reservoir and when the level signals are indicative of a level above the predetermined level the pump is caused to increase the flow of blood out of the venous reservoir.

90. The method of claim 88 wherein the step of providing a level control element comprises providing a flow control member operatively connected to the venous line for controlling the rate of blood flow through the venous line into the venous reservoir and wherein the step of providing a control unit comprises providing a control unit which is configured such that when the level signals are indicative of a level below the predetermined level the flow control member is caused to increase the flow of blood into the venous reservoir and when the level signals are indicative of a level above the predetermined level the flow control member is caused to decrease the flow of venous blood into the reservoir.

91. The method of claim 90 wherein the step of providing a level control element comprises providing a venous line clamp attached to the venous line.

92. The method of claim 88 wherein the venous reservoir is a sealed reservoir, wherein the step of providing a level control element comprises connecting a vacuum source to the venous reservoir and wherein the step of providing a control unit comprises providing a control unit which is configured such that when the level signals are indicative of a level below the predetermined level the amount of vacuum applied to the venous reservoir is increased and when the level signals are indicative of a level which is above the predetermined level the amount of vacuum applied to the venous reservoir is decreased.

93. In an extracorporeal blood perfusion system for receiving blood from a patient through a venous line, oxygenating the blood, and returning the oxygenated blood to the patient through an arterial line, a method of preventing the return of oxygenated blood containing gaseous bubbles to the patient, the extracorporeal blood perfusion system including a cardiopulmonary blood circuit having a plurality of tubing lines interconnecting a venous reservoir, a blood oxygenator and an arterial blood filter, the method comprising:

connecting the blood perfusion system for receiving venous blood from the patient and returning oxygenated blood to the patient;

providing an air purge line including a purge valve having an open position for opening the purge line and a closed position for closing the purge line;

fluidly connecting a first end of the purge line with an outlet of the oxygenator and a second end of the purge line with an inlet of the venous reservoir; and

providing a control unit having a sensor for determining the presence of gaseous bubbles in a tubing line connected to an outlet of the oxygenator, the control unit being connected to the first pump for controlling the speed of the first pump and being connected to the purge valve for automatically opening

the purge valve when gaseous bubbles are sensed by the sensor such that at least a portion of the oxygenated blood is diverted from the patient through the air purge line back to the venous reservoir.

94. The method of claim 93 wherein the step of fluidly connecting the first and second ends of the purge line includes connecting the first end of the purge line to a purge port on the arterial blood filter.

95. The method of claim 93 further including providing an arterial valve in the arterial line, the arterial valve having an open position for opening the arterial line and a closed position for closing the arterial line and wherein the step of providing a control unit includes providing a control unit connected to the arterial valve for automatically closing the arterial valve when gaseous bubbles are sensed by the sensor.

96. The method of claim 93 wherein the step of providing a control unit includes providing a control unit connected to the first pump for automatically slowing the speed of the first pump when gaseous bubbles are sensed by the sensor.

97. A method of automatically priming an extracorporeal blood perfusion system which includes a cardiopulmonary blood circuit for receiving venous blood from a patient, oxygenating the blood and returning the oxygenated blood to the patient, the blood circuit being defined by a plurality of tubing lines interconnecting a plurality of components including a venous reservoir and an oxygenator, the blood perfusion system further including a first pump for causing fluid to flow in the blood circuit, the method comprising:

providing a source of priming fluid;

providing a priming fluid valve;

connecting the source of priming fluid to the blood circuit through the priming fluid valve in a manner such that the flow of priming fluid to the blood circuit is controllable by the priming fluid valve;

providing a control unit having a component interface region for functionally interfacing with and controlling the first pump and the priming fluid valve, the control unit having a plurality of selectable operational modes including an automatic priming mode whereby upon selection of the automatic priming mode the control unit opens the priming fluid valve and controls the speed of the first pump to prime the blood circuit; and

selecting the automatic priming mode on the control unit to prime the blood circuit including the venous reservoir, oxygenator and interconnecting tubing.

98. The method of claim 97 wherein the plurality of components include a heat exchanger and an arterial blood filter and wherein the step of selecting the automatic priming mode comprises priming of the blood circuit including the venous reservoir, oxygenator, heat exchanger, arterial blood filter and interconnecting tubing.

99. The method of claim 97 wherein the blood perfusion system includes a cardioplegia circuit for providing a cardioplegia solution to the patient, the cardioplegia circuit including a second pump for causing fluid to flow in the cardioplegia circuit and wherein the step of providing a control unit includes providing a control unit having a component interface region for functionally interfacing with and controlling the first and second pumps and the priming fluid valve, the control unit having a plurality of selectable operational modes including an automatic priming mode whereby the control unit opens the priming fluid valve and controls the speed of the first and second pumps to prime the blood circuit and the cardioplegia circuit, and wherein the step of

selecting the automatic priming mode causes the blood circuit and the cardioplegia circuit to be automatically primed.

100. In an extracorporeal blood perfusion system for receiving venous blood from a patient through an end of a venous line, oxygenating the blood and returning the oxygenated blood to the patient through an end of an arterial line, the perfusion system including a cardiopulmonary blood circuit defined by a plurality of tubing lines interconnecting a plurality of components including a venous reservoir and oxygenator, the perfusion system also including a first roller pump attached to a tubing line of the cardiopulmonary blood circuit, a method of testing for leaks and pump loading and occlusion in the cardiopulmonary blood circuit comprising:

sealing the ends of the venous and arterial lines;

providing a control unit having a pressure sensor for measuring pressure in the cardiopulmonary blood circuit, the control unit being connected for controlling the operation of the first roller pump, the control unit having a cardiopulmonary blood circuit test mode, selection of which causes the control unit to automatically operate the first roller pump until a first predetermined pressure is measured by the sensor, and to monitor the pressure over a predetermined period of time to determine whether the decay of pressure is within a predetermined acceptable range; and

selecting the cardiopulmonary blood circuit test mode of the control unit.

101. In an extracorporeal blood perfusion system for receiving venous blood from a patient through an end of a venous line, oxygenating the blood and returning the oxygenated blood to the patient through an end of an arterial line, the perfusion system including a cardiopulmonary blood circuit defined by a plurality of tubing lines interconnecting a plurality of components including a venous reservoir and oxygenator, a cardioplegia circuit for delivering a

cardioplegia solution to the patient through an end of a cardioplegia line, and a suction circuit for removing blood and other fluids from the patient through an end of a suction line, a method of testing for leaks and for proper pump loading and occlusion in the cardiopulmonary blood circuit, the cardioplegia circuit, and the suction circuit, the method comprising:

sealing the ends of the venous, arterial, cardioplegia and suction lines;

providing a control unit having at least one pressure sensor for measuring fluid pressure in the cardiopulmonary blood circuit, the cardioplegia circuit and the suction circuit, the control unit being connected for controlling the operation of the first, second and third roller pumps, the control unit having a cardiopulmonary blood circuit test mode, selection of which causes the control unit to automatically operate the first roller pump until a first predetermined pressure is measured by the sensor and to monitor the pressure over a first predetermined period of time to determine whether the decay of pressure is within a first predetermined acceptable range, the control unit further having a cardioplegia circuit test mode, selection of which causes the control unit to automatically operate the second roller pump until a second predetermined pressure is measured by the sensor and to monitor the pressure over a second predetermined period of time to determine whether the decay of pressure is within a second predetermined acceptable range, the control unit further having a suction circuit test mode, selection of which causes the control unit to automatically operate the third roller pump until a third predetermined pressure is measured by the sensor and to monitor the pressure over a third predetermined period of time to determine whether the decay of pressure is within a third predetermined acceptable range;

selecting the cardiopulmonary blood circuit test mode of the control unit to test for leaks in the cardiopulmonary blood circuit and proper pump loading and occlusion of the first pump;

selecting the cardioplegia circuit test mode of the control unit to test for leaks in the cardioplegia blood circuit and proper pump loading and occlusion of the second pump; and

selecting the suction circuit test mode of the control unit to test for leaks in the suction circuit and proper pump loading and occlusion of the third pump.